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EXAMINER
MCALLISTER, STEVEN B

ART UNIT	PAPER NUMBER
3627	

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/170,225	Applicant(s) Sawa et al
	Examiner Steven McAllister	Art Unit 3627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 19, 2003*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-10* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 1 and 5 are objected to because of the following informalities: that the "projecting amount of the high hardness particles increases with the elasticity of the elastic material" is not clear. In examining the claim it was read as "projecting amount ... with increasing elasticity of the elastic material". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-5 and 7-10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1 and 5 recite that the "projecting amount of the high hardness particles increases with the elasticity of the elastic material when a member to be fed is fed". This suggests that the elasticity of the elastic material and the projection of the particles increases when a member is fed. Additionally, the phrase suggests that the projection of the particles increases when the

articles are fed, but it is not clear how this would occur since the fed article puts a force into the belt and would actually tend to push the particle in. One of ordinary skill in the art would not be able to make the claimed invention without undue experimentation.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 3-5 and 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 5 are indefinite because the preamble recites the subcombination of a feed belt, but the body of the claim recites the combination of a feed belt and its associated feed system. The claims recite that the "pressure applied to the belt from said member varies with the shape or hardness of the member to be fed", positively reciting that which is not part of the belt. It is not clear whether the applicant intended to claim the combination or the subcombination. The claims should be rewritten to positively recite either the combination or the subcombination. In examining the claims, it was assumed that the subcombination was claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frandsen in view Saylor, Jr

Frandsen shows an elastic material and high hardness particles dispersed throughout and projecting from the elastic material (Fig. 3). It inherently shows that the projection increases with increasing elasticity since greater elasticity allows for greater movement of the particles within the belt. It is further inherent that an external force (pushing from behind the belt as in Fig. 4B) would cause the projection to vary since the load pushes out on particles and stretches the belt. It is also inherent that the hardness is 15-90 since the hardness of ultra high molecular weight polyethylene is 58-62. Frandsen does not explicitly show that the particle size is 3-300 micrometers, or that the particle density is between 10-70 percent by weight. Saylor shows particles with a size of 3-300 micrometers and a weight density of 10-70 percent. It would have been obvious to one of ordinary skill in the art to modify the apparatus of Frandsen by using particles with a size of 3-300 micrometers and a weight density of 10-70 percent in order to a sufficient coefficient of friction.

As to claim 4, Frandsen in view of Saylor, Jr. disclose all elements of the claim except the filament disposed on the driving surface. However, it would have been an obvious matter of design choice to place the filament on the driving surface side since it does not appear that the specific placement solves any specific problem or is for any particular reason and it appears that the belt would perform equally well with the filaments located in either location.

7. Claims 1, 3-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold in view of Saylor, Jr.

Arnold shows a belt with an elastic base material layer 86, the layer having a hardness of between 15 and 90 (col. 10, lines 10-20) and a second layer 82 (col. 10, lines 10-20). It does not show a particle containing layer, the layer 10-70% of its weight composed of 3-300 micrometer particles. Saylor, Jr. shows a layer 16 with 3-300 micrometer sized particles (col. 3, lines 57-61) and comprising 10-70% of the weight of the layer (col. 3, line 40 - col. 4, line 30). It would have been obvious to one of ordinary skill in the art to modify the second elastic layer 82 of Arnold by adding the particles as taught by Saylor, Jr. in order to provide enhanced friction on the load surface of the belt. It is inherent that under various load conditions (caused for instance by conveyed materials of different shapes or hardnesses) the particles will project various amounts due to the resiliency of the rubber because the greater pressures will cause a greater load on the individual particles.

As to claims 3 and 7, it is noted that Arnold discloses a filament in the central portion of the belt (see Fig. 8B).

As to claims 4 and 8, Arnold in view of Saylor, Jr. disclose all elements of the claim except the filament disposed on the driving surface. However, it would have been an obvious matter of design choice to place the filament on the driving surface side since it does not appear that the specific placement solves any specific problem or is for any particular reason and it appears that the belt would perform equally well with the filaments located in either location.

As to claim 9, it is noted that the hardness of the second material is less than the hardness of the first.

8. Claims 1, 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frandsen in view of Mashimo et al (4642082)

Frandsen shows an elastic material and high hardness particles dispersed throughout and projecting from the elastic material (Fig. 3). It inherently shows that the projection increases with increasing elasticity since greater elasticity allows for greater movement of the particles within the belt. It is further inherent that an external force (pushing from behind the belt as in Fig. 4B) would cause the projection to vary since the load pushes out on particles and stretches the belt. It is also inherent that the hardness is 15-90 since the hardness of ultra high molecular weight polyethylene is 58-62. Frandsen does not explicitly show that the particle size is 3-300

micrometers, or that the particle density is between 10-70 percent by weight. Mashimo et al show particles with a size of 3-300 micrometers and a weight density of 10-70 percent (col. 3, lines 50-68). It would have been obvious to one of ordinary skill in the art to modify the apparatus of Frandsen by using particles with a size of 3-300 micrometers and a weight density of 10-70 percent in order to a improve wear characteristics.

As to claim 3, it is noted that Mashimo et al discloses a filament in the central portion of the belt (see Fig. 8B).

As to claim 4, Frandsen in view of Mashimo et al disclose all elements of the claim except the filament disposed on the driving surface. However, it would have been an obvious matter of design choice to place the filament on the driving surface side since it does not appear that the specific placement solves any specific problem or is for any particular reason and it appears that the belt would perform equally well with the filaments located in either location.

Response to Arguments

9. Applicant's arguments filed 5/19/03 have been fully considered but they are not persuasive.

Regarding applicant's arguments dealing with the 112 1st rejection, the existing phrasing suggests that both projection and elasticity vary when an article is fed. A clarification would overcome that rejection. As to the second point, the Applicant argues that feeding of the article induces an axial tension in the belt which causes the particles to project. However, this supposes

specific structure and loading not claimed. A clarification that particle projection occurs when an axial stress occurs along the belt without reference to the member which is fed would overcome this rejection.

As to the 112 2d rejection, it is noted that elements other than the belt itself are claimed as discussed above.

Regarding the 103 rejection of Frandsen in view of Arnold and Saylor, Jr., Applicant argues that Frandsen teaches away from a more flexible belt material. It is further noted that UHMW polyethylene has a hardness of 58-62, and that Arnold is not needed to teach this element. Applicant further argues that since the beads of Saylor are approximately the thickness of the belt of Frandsen that any stretching would cause the beads to pop out. However, Saylor specifically states that at least 50% of the bead should be embedded or popping out will occur. In this case, the bead can be fully embedded. Regarding the different environments, both inventions are trying to solve the same problem, providing a rough surface on an elastic member and both solve it in the same way, but the use of embedded beads.

Regarding the 103 rejection of Arnold in view of Saylor Applicant argues that the motivation to add beads to the belt is improper because it is used in a different environment -- agricultural. However, enhancing the coefficient of friction on the face of the belt is equally valid in that environment, or in any conveying environment. Further, regarding the different environments, both the teaching reference and the present are trying to solve the same problem,

providing a rough surface on an elastic member and both solve it in the same way, but the use of embedded beads.

As to the 103 rejection of Frandsen in view of Arnold and Mashimo, Applicant argues again that the combination is improper. It is again noted, however, that Arnold is not needed to show all elements since the hardness of UHMW polyethylene is about 60. Regarding Mashimo, Applicant argues that the teaching is not valid because Mashimo is a transmission belt. However, it is noted that wear on all types of belts is a concern.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven B. McAllister whose telephone number is (703) 308-7052.

Steven B. McAllister

August 6, 2003